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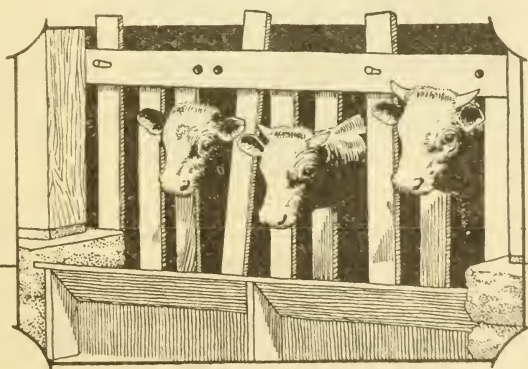
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Care
of the
Dairy
Calf



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CARE OF THE DAIRY CALF

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The dairy calf must have good feed and care in order to grow and to develop properly. A calf that gets a good start during the first six months has a better chance of developing into a large-size animal capable of giving a good account of itself when mature than one getting a poor start during this time.

The Newborn Calf

The calf should be born in a clean, disinfected, well-bedded box stall, or in a grassy paddock or pasture in summer. Immediately after arrival the calf must be given attention. If a slimy membrane covers its nose, remove this so that it can breathe more easily. Usually the cow will start to dry the calf at once by licking it vigorously. If she does not do this, dry it with burlap, straw, or some other suitable material. To guard against infection clip the navel cord about 1 inch from the belly immediately after birth and apply tincture of iodine at once.

A normal calf is able to stand shortly after birth, and within a half hour it will be nursing. Sometimes the calf is so weak that it is necessary to hold it to the cow's udder in order that it may nurse. Give the calf the first milk, known as colostrum. Colostrum is very beneficial in clearing the digestive tract and in aiding the organs to start functioning properly. Leave the calf with its mother 12 to 48 hours, as one left longer than this is hard to teach to drink.

Quarters

After taking the calf from its mother, place it in an individual pen to prevent its being sucked and its navel from being injured. This pen should be clean, light, well bedded with dry material, and free from drafts. At the United States Dairy Experiment Station at Beltsville, Md., which is conducted by the Bureau of Dairy Industry, these individual pens have tight sides about 3½ feet high. This not only keeps the calf from coming in contact with anything outside of its pen, but helps to protect it from disease germs, and may also aid in preventing the spread of disease to other young calves.

When the calf is 3 or 4 weeks old, put it in a larger pen alone or with other calves of the same age. Provide a lot or small pasture, and when the weather is not too cold or stormy, turn the calf out so that it will get plenty of exercise and direct sunlight.

Teaching the Calf to Drink

A calf that has been kept without feed for at least 12 hours usually can be taught to drink quite readily. Give it fresh, warm milk from its mother, and feed this from a clean pail. Back the calf into a corner, straddle it, and place the pail of milk in front of it. (Fig. 1.) Dip two fingers into the milk and put them in the calf's mouth. When it starts to suck the fingers, draw its nose down into the bucket of milk. Spread the two fingers apart a little, and the calf will draw milk up into its mouth between the fingers as it sucks. After it gets several swallows of milk remove the fingers slowly. Repeat this operation as often as necessary. Many calves taught by this method will drink at the first feeding.

Cleanliness the First Essential

Cleanliness is absolutely essential in the successful raising of calves. This is equally true of the feed, pen, bedding, and pails or utensils. All milk and other feeds should be fresh and clean. Keep the calf pens clean and well bedded with dry material. Thoroughly wash and scald or steam the milk pails after each feeding. Remove discarded feed from the feed boxes every day. Attention to these details is the best way to prevent disease. Many small digestive disturbances which hinder growth and development are caused by bacteria due to lack of cleanliness.

When skim milk, buttermilk, or whey from a creamery or cheese factory is fed it should always be pasteurized, because it is practically impossible to know that such products are free from organisms that cause disease.

Feeding During First Two to Four Weeks

During the first two to four weeks give the calf whole milk having a temperature of about 95° to 100° F. For the first week or so feed the calf milk from its mother, after which mixed milk from the herd may be used. The calf may be fed three times a day for a few days, but feeding twice a day is usually sufficient from the start. Use



FIGURE 1.—Teaching the calf to drink

milk scales to weigh the milk at each feeding. (Fig. 2.) The calf will thrive better if it is fed sparingly rather than too much, during the first four weeks. If the milk tests more than 4 per cent butterfat, dilute it with skim milk, because milk that is too rich is likely to give the calf indigestion and scours. Until the calf is three or four weeks old, the addition of limewater to the whole milk appears to be beneficial.

The young calves raised at the experiment station at Beltsville are unusually free from digestive disturbances. These calves are taken from their mothers when about 12 hours old, and are fed just twice

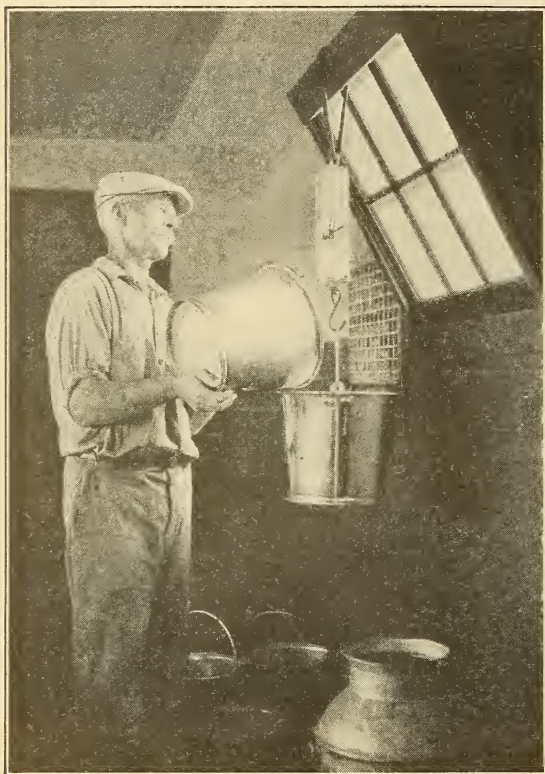


FIGURE 2.—Weighing the milk for the calf

a day from the start. Whole milk is fed for the first 30 days, and then a change is gradually made to skim milk feeding. The quantities of milk fed are as follows:

Jersey calves receive $2\frac{1}{2}$ pounds of whole milk and one-half pint of limewater per feed for the first 10 days; 3 pounds of whole milk and one-half pint of limewater per feed for the second 10 days; and 4 pounds of whole milk and one-half pint of limewater per feed for the third 10 days. Holstein calves receive 4 pounds of whole milk and one-half pint of limewater per feed for the first 10 days; 5 pounds of whole milk and one-half pint of

limewater per feed for the second 10 days; and 6 pounds of whole milk and one-half pint of limewater per feed for the third 10 days.

During this period Jersey calves consume a total of 190 pounds of whole milk, and Holstein calves 300 pounds. An additional quantity of 50 to 65 pounds of whole milk per calf are required during the change from whole milk to skim milk feeding. Calves that are weak or sickly are fed considerably smaller quantities of milk until their condition improves and they are able to digest normal quantities.

To make the limewater, stir 1 pint of commercial hydrated lime into a bucket of water. This lime is the common plaster lime usually sold in paper bags. Mix thoroughly several times at short intervals,

and then allow the lime to settle. Use only the clear water, and do not stir again. When this supply is gone, use fresh lime in making up a new batch.

Changing and Increasing Feed

A few calves are raised on whole milk, but it is usually too valuable to feed. Calves do nearly as well on skim milk, and most calves are raised on this feed. If fresh skim milk is not available the calf may be given dry skim milk, other milk products, or specially prepared calf meals fed with a small quantity of milk. Give the calf hay and grain at an early age to supplement these feeds.

Fresh Skim Milk

If the calf is doing well gradually substitute fresh skim milk for whole milk when the animal is 2 to 4 weeks old. Take at least 10 days to make the change, substituting skim milk for whole milk at the rate of about 1 pound a day. Do not increase the total amount of milk fed while this change is being made. If the manure becomes liquid, which is a sign of the condition commonly known as diarrhea or scours, the milk is not being properly digested. Delay any further substitution of skim milk for whole milk until this condition disappears. Take care to remove all foam from the skim milk, as this sometimes causes digestive trouble and bloating.

At 4 to 5 weeks of age, calves weighing 50 to 75 pounds at birth require about 10 pounds of skim milk daily; and calves weighing 75 to 100 pounds at birth require about 14 pounds daily. After this time the quantity to feed and the length of time to feed depends largely upon the quantity of skim milk available. Good calves can be raised on a maximum of 14 pounds of skim milk a day, although some calves can make good use of larger quantities. If skim milk is available feed it until the calf is 6 months old. Skim milk may be given to advantage up to 8 to 10 months of age.

Hay, Grain, and Silage

At the beginning of the third week give the calf small amounts of both hay and grain. Feed the most palatable hay on hand. Clean, bright clover, alfalfa, or mixed hay is best. Feed hay sparingly at first and increase the amount gradually as the calf gets accustomed to it. Place a rack where the calf can reach the hay but can not soil it. Put only as much hay in this rack as the calf will clean up in a day.

The grain mixture should be palatable, have a good effect on the digestive system, and supply the food materials that the calf requires. Home-grown grains, such as corn and oats, and purchased feeds, such as wheat bran and linseed meal, are good calf feeds. The following are recommended for the mixtures. The proportions given are on the basis of weight.

- (1) 3 parts cracked corn and 1 part wheat bran.
- (2) 3 parts cracked corn, 1 part wheat bran, and 1 part ground oats.
- (3) 3 parts cracked corn, 1 part wheat bran, 1 part ground oats, and 1 part linseed meal.
- (4) 5 parts cracked corn, 1 part wheat bran, 1 part ground oats, and 1 part dried-blood flour.
- (5) Ground oats.

A calf 2 weeks old will eat only a handful or two of grain per day. Increase this amount gradually until the calf gets about half a pound daily at 4 weeks of age, a pound at 6 weeks, $1\frac{1}{2}$ pounds at 8 weeks, and 2 pounds at 10 weeks to 3 months of age. Three or more pounds per day may be fed a little later if the calf is not gaining satisfactorily on a smaller amount.

Silage is not a satisfactory feed for the young calf, but it may be included in the ration after the calf reaches 3 months of age. Two pounds a day is enough for the 3-months-old calf. Gradually increase this amount at the rate of 1 pound a day for each month's advance in the calf's age. Never feed moldy silage, because it is likely to cause indigestion and poisoning.

Dry Skim Milk

Dry skim milk, when fresh and wholesome and when properly mixed with water to the approximate composition of skim milk, makes a good substitute for fresh skim milk.

Mix 1 part of dry skim milk with 9 parts of warm water and feed the same as fresh skim milk. In preparing it for feeding, mix the dry milk with an equal quantity of warm water, stir thoroughly until of a smooth consistency, and then add the rest of the water. Take care to mix this feed in the same proportion from day to day, and feed at a temperature of about 100° F. Gradually change the calf to this feed from whole milk in the same way that it is changed from whole milk to fresh skim milk.

Other Milk Products

Fresh buttermilk, dry buttermilk, condensed (semisolid) buttermilk, and whey can all be used for calf feeding.

Directions for feeding fresh skim milk apply also to fresh buttermilk. Dry buttermilk is fed in the same way as dry skim milk. Semisolid buttermilk is first diluted with three times its weight of water and then fed the same as fresh skim milk. Nearly as good results should be obtained from these feeds as from fresh skim milk. The same supplementary grain mixtures as are used with skim milk will be suitable for them.

Whey is fed in the same way as fresh skim milk. It lacks most of the protein contained in skim milk and the other milk products, and the grain mixture fed with it should therefore include some linseed meal. The addition of 25 pounds of skim milk or whole milk to every 100 pounds of whey will make it a more satisfactory calf feed.

These feeds are likely to be a little more laxative than fresh or dry skim milk, and more care should be exercised when changing over to them from whole milk than when making the change from whole milk to skim milk. The quantity and quality of the feed should be uniform, and there should be no sudden changes in the calf's ration.

Specially Prepared Calf Meals

If skim milk is scarce, whole milk may be gradually replaced by specially prepared calf meals. Although this method of feeding is not quite as satisfactory as the feeding of skim milk, the results will be fairly good if a good calf meal is properly fed.

Several ready-mixed calf meals are on the market. The best ones contain an animal product, preferably some sort of dry milk. Satisfactory calf meals can be mixed at home if the necessary ingredients can be obtained.

Beltsville Calf Meal

The following mixture has been devised at the Beltsville experiment station. The parts are on the basis of weight.

Fifty parts of finely ground corn, 15 parts of linseed meal, 15 parts of finely ground rolled oats, 10 parts of dried-blood flour, 10 parts of dry skim milk, and one-half part of salt.

The composition of this meal is not materially different from that of others in satisfactory use at several experiment stations, and the direction for feeding given below will apply to both commercial meals and to those mixed at home.

The meal may be fed either wet or dry. If the meal is fed dry, give the calf all it will eat. In feeding the meal wet, mix it with six times its weight of warm water, and start with about 0.4 pound of dry meal. Increase this gradually, so that at the end of 50 or 60 days the calf will be getting 2 pounds of the meal a day. When meal feeding is begun, give a large calf 10 pounds of whole milk a day until it is 10 days old, then 8 pounds for 10 days, then 6 pounds for 10 days, and so on until at 50 days of age the calf will be getting no milk. Give a small calf 6 pounds of whole milk a day for the first 10 days, then 8 pounds for 20 days, then 6 for 10 days, and so on until at 60 days of age the calf will be getting no milk.

When the calf is 3 months old it may be fed a cheaper ration than the calf-meal ration and one that does not contain any animal product. Three parts (by weight) of ground corn, 2 parts of wheat bran, and 1 part of linseed meal make a good mixture. Previous to this time, however, calves should have access to a similar mixture of grain as well as hay. By following this feeding plan, 300 pounds of whole milk will be required to raise a calf. Experience has shown that health can not be maintained and satisfactory growth made on much less than this quantity.

Special calf meals are substitutes for whole milk, but better calves can be raised on fresh or dry skim milk than on any milk substitute yet devised.

Water and Salt

Even though a calf drinks milk, it needs water when 2 or 3 weeks of age. Provide plenty of fresh, clean water, so the calf can drink at will. When the calf is old enough to eat roughage allow it to have access to salt also.

Stanchions for Calves

When several calves are kept together in a large pen it is difficult to feed them by hand unless they are tied. Special steel stanchions, which can be bought, or simple wooden stanchions, which can be made at home, may be used. Homemade wooden stanchions¹ and feed mangers are illustrated on the cover page.

¹ Plans for making such stanchions may be obtained free from the Bureau of Public Roads, U. S. Department of Agriculture, Washington, D. C.

Preventing Horns

The development of horns can be prevented by using caustic soda or caustic potash when the calf is from 4 to 10 days old. At this age the undeveloped horn, or button, is only loosely attached to the skull and appears to be more a part of the skin.

In treating to prevent the growth of horns, first clip the hair over and around the horns. Apply vaseline liberally across the head, above the eyes, and over the temples and ears to prevent severe burns. Wrap the stick of caustic in paper, leaving one end exposed. Slightly moisten the exposed end with water and rub on the horns alternately, making a raw spot about the size of a nickel or 25-cent piece. Do not continue the rubbing until these spots bleed. In applying the caustic, take care that it does not run down the side of the calf's head. Keep the calf under shelter if there is any likelihood of rain.

Marking for Identification

It is important, especially in registered herds, that each calf be marked plainly for easy identification. This is best accomplished by using metallic or composition ear tags or by tattooing the ears. Breeding and calving records, photographs, and diagrams of color markings are also helpful.

Scours from Indigestion

Diarrhea, or scours, probably is the most common disease of calves. It may be caused by irregular feeding, overfeeding, sudden change of feed, fermented feeds, feeding dirty milk or milk from diseased cows, use of dirty milk pails or feed boxes, and damp, dirty stables. As soon as a case of scours is discovered, separate the affected calf from the others and clean and disinfect the pen. Reduce the affected calf's feed immediately by at least half, and give a dose of 1 to 2 ounces of castor oil, depending upon the size of the calf. If one dose is not sufficient, give another dose in a day or two.

White Scours

White scours first appears shortly after birth, with light-colored, offensive droppings. A calf affected with this disease wants to sleep all the time, can not be induced to suck or drink, becomes very weak, and usually dies within three or four days. There is no specific treatment for the disease. The organism causing this disease gains entrance through the navel of the newborn calf. It can be prevented by having the cows calve in a clean, disinfected stall, and by applying tincture of iodine to the clipped navel cord immediately after birth.

Lice

Lice are very irritating to the calves, give them a rough unthrifty appearance, and prevent them from gaining as they should. The lice may be killed easily by applying a coal-tar dip according to the directions given on the container. In the winter a warm day should be selected for this work, as calves are very susceptible to pneumonia. In the meantime the activity of the lice may be checked by applications of powdered borax along the top line from poll to tail.

